

Replace the paragraph beginning at page 14, line 15 with:

c6  
In general, refractive index is defined by  $n_{21} = \sin\theta_1 / \sin\theta_2$ . Here,  $\theta_1$  is the angle of incidence of incident rays and  $\theta_2$  is the angle of refraction of refracted rays. For a given refractive index (n) in vacuum, for simplicity,,  $n=c/v$  where c is the speed of light in vacuum and v is the speed of light in the medium,  $n^2=\epsilon\mu$  where  $\epsilon$  is dielectric constant and  $\mu$  is permeability. The dielectric constant of the composite according to the present invention can vary in response to an externally applied electric field (E). This is mainly because the nano magnetic particles 200 introduced into the composite are superparamagnetic. The magnetization degree of a superparamagnetic material changes according to the intensity and frequency of the externally applied electric field (E). Thus, as the intensity and frequency of the externally applied magnetic field (E) change, the dielectric constant of the composite according to the present invention can change.

IN THE CLAIMS:

Please cancel claims 21 and 22 and replace the indicated claims with:

c7  
1. (Amended) A composite comprising:  
a layer of a dielectric material having a thickness, as a matrix of the composite; and  
nano magnetic particles having a dimension and dispersed throughout the matrix,  
wherein the thickness is at least one thousand times the dimension.

c8  
6. (Amended) The composite according to claim 1, wherein the matrix is selected  
from the group consisting of polyimide, polymethyl methacrylate, and methyl silsesquioxane.

c9  
9. (Amended) The composite according to claim 8, wherein the diamagnetic nano  
particles include indium.

c10  
11. (Twice Amended) The composite according to claim 1, wherein the nano  
magnetic particles are selected from the group consisting of  $\gamma\text{-Fe}_2\text{O}_3$ , chromium oxide,  
europium oxide, NiZn-ferrite, MnZn-ferrite, and yttrium-iron garnet.

c11  
13. (Amended) A semiconductor device comprising:  
a semiconductor substrate: and

C11 an insulator disposed on the semiconductor substrate and comprising a composite including a layer of a dielectric material having a thickness, as a matrix of the insulator, and nano magnetic particles having a dimension and dispersed throughout the matrix, wherein the thickness is at least one thousand times the dimension.

C12 18. (Amended) An optical device comprising:  
a layer of a transparent dielectric material having a thickness, as a matrix; and  
nano magnetic particles dispersed within the matrix, wherein the thickness is at least one thousand times the dimension.

*IN THE ABSTRACT:*

Replace the Abstract with:

**ABSTRACT**

C13 A composite containing nano magnetic particles is provided. The composite includes nano magnetic particles in a dielectric matrix. The matrix is made of an inorganic material such as silica, alumina, or hydrosilsesquioxane, or an organic material such as polyimide, polymethyl methacrylate, or methyl silsesquioxane. The nano magnetic particles consist of  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>, chromium oxide, europium oxide, NiZn-ferrite, MnZn-ferrite, yttrium-iron garnet, or indium In.